



Coastal Watershed Condition Assessments

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NPS Coastal Watershed Portfolio

- Coast and uplands inextricably linked via Park watersheds
- Coastal fjords, bays, rivers, estuaries, barrier islands, coral reefs, wetlands, Great Lakes, open ocean
- >3 million ac marine area
- 5,000 miles shoreline





Our Crowded Coasts

- 53% population occupy less than 17% entire U.S. land area (coastal zone)
- 75% by 2020
- Wetland loss >20,000 acres year
- Water quality problems, algal blooms, pfiesteria, salinity changes, hypoxia
- Recreational overuse, overfishing
- Shoreline, sediment flow alterations

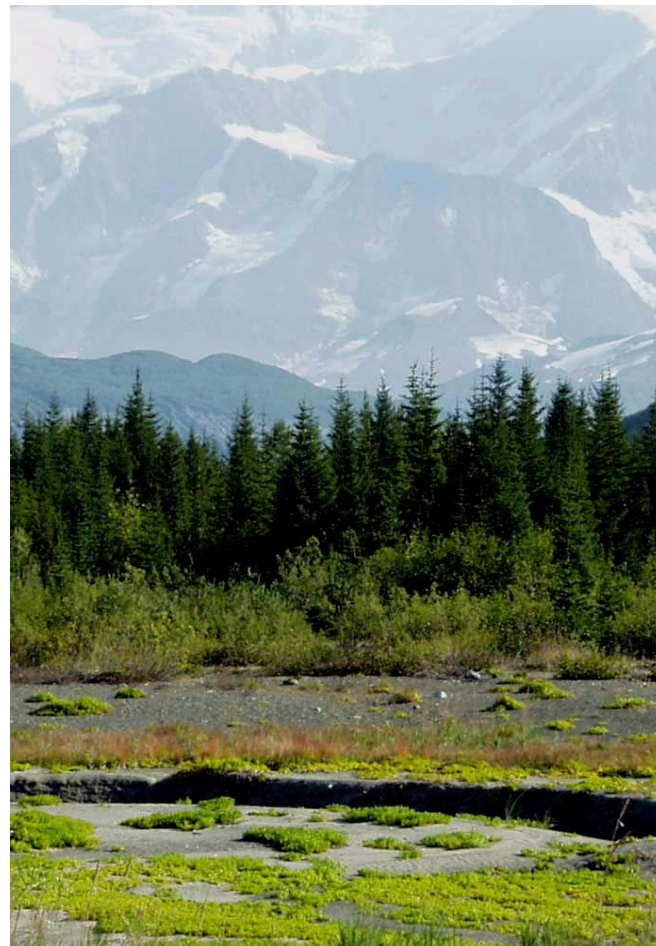
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National Coastal Condition

- Overall Health:
Fair
- Good: 21%
- Impaired: 35%
- Threatened: 44%
- Fish Advisories:
74% of coastline



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Coastal Watershed Health: Why Worry?

- DOI-NPS Strategic Plan: *acres achieving desired conditions*
- Watershed Element
- Marine & Coastal Resource Element
- Park enabling laws
- Commission on Ocean Policy
- NPS Ocean Park Stewardship Plan



Coastal Watershed Assessments

- 48 coastal Parks
- Status or condition of water resources?
- Def: Watershed? :-0
- Phase I: water resources inside or proximate to Park boundary
- Existing information



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Who does the work?

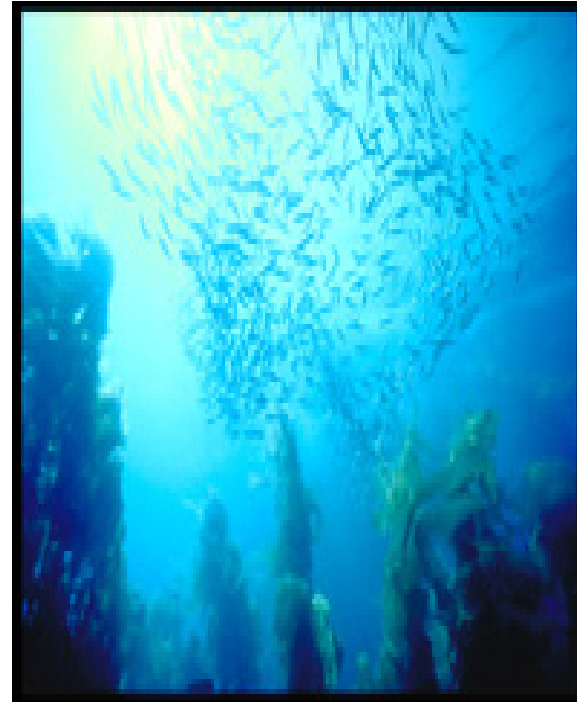
- Thru CESU Networks
- Universities with regional/local orientation near Park
- Marine expertise
- Provide geospatial, water quality analysis, biological assessments





Phase I Methodology

- Round up the available sources (USGS, NOAA, EPA, state)
- Compile and interpret existing information
- Statement/Hypothesis: are resources healthy, impaired, or threatened?
- Why? (threats or absence thereof)



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Phase I Methodology

- What is unknown?
- Recommend further studies to:
- Fill information gaps, or
- Investigate potential issues or known threats



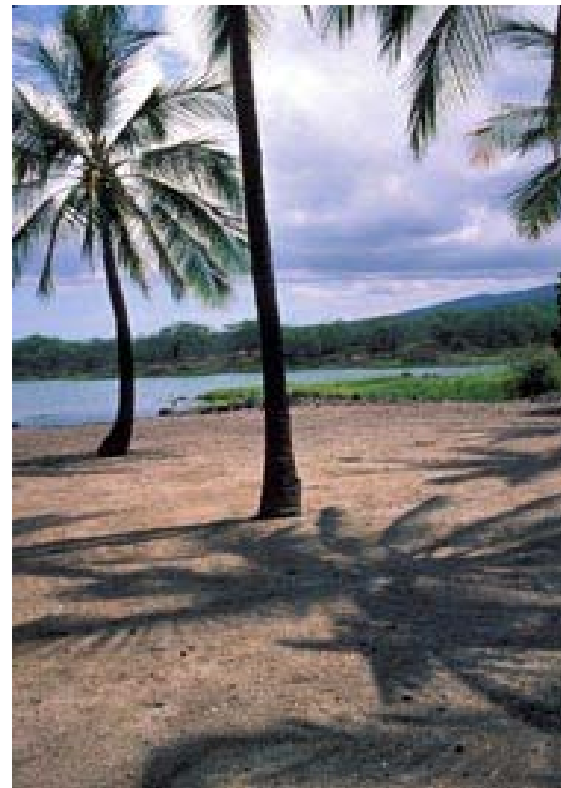
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Pilot Phase I Assessments

- South Atlantic and Gulf Coast National Seashores
- Biogeographic Regions (Vital Signs Networks)
- Similarity of resources
- Barrier island (nearshore marine)
- Lagoon/Sound (estuarine)



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South Atlantic & Gulf Coast National Seashores & Parks

- Protect last remaining undeveloped beaches
- Rare habitat for T&E species: sea turtles, amphibians, manatees, shorebirds, etc.
- Productive estuarine habitats: seagrass beds, salt marshes
- Fish, bird and invertebrate nurseries and feeding grounds
- Valuable recreation sites > 15 million visitors per year

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Cumberland Island NS Land Cover/Land Use

- Park area: 36,402 ac
- Beaches & dunes: 2,405 ac
- Salt marsh: 10,717 ac
- Forested wetlands: 804 ac
- Evergreen forest: 10,924
- Roads: 1,190 ac
- Open water: 9,651 ac

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Water Quality Cumberland Island NS

- Coastal Resources Div/GA DNR, EPA National Coastal Assessment, NPDES permits & King's Bay Naval Station DEIS
- Toxics, pesticides and heavy metals.....
- Potential Sources: industrial, municipal waste, Superfund sites, King's Bay
- Low DO - hypoxia, aquatic life mortality.....
- Potential Source: nutrients from agricultural runoff? (need more data - nitrogen loadings)

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Coastal Development Cumberland Island NS

- Cumberland Harbor: 1,014 ac & 90 residences
- Two full service marinas w/ 296 boat slips and 400 dry storage
- Gift shops, restaurants, boardwalks
- Combustion fuel emissions, spills - PAH pollution
- Wetlands losses & marsh disturbance from construction and shading
- Permits pending under State and USACE

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Invasive Species Cumberland Island NS



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Invasive, Non-Native Species Cumberland Island NS

- Major aquatic threat: Green mussel *Perna viridis*
- Outcompetes native mussels, disease vector
- Possible threat: Green porcelain crab *Petrolisthes armatus*
- 250 feral horses = 3 to 4 million lbs waste, 24,900 lbs nitrogen and 9,467 phosphorous
- Damage wetlands by trampling, erosion
- Swine: damage vegetation - removal underway

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Status

- Seven Parks on South Atlantic and Gulf Coasts started in FY03
- First report complete: Cape Lookout NS
- By December: Final Cumberland Island NS & Padre Island NS reports, and draft Fort Pulaski NM
- In process: Gulf Islands NS, Canaveral NS, Timucuan NEHP

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Future Coastal Assessments

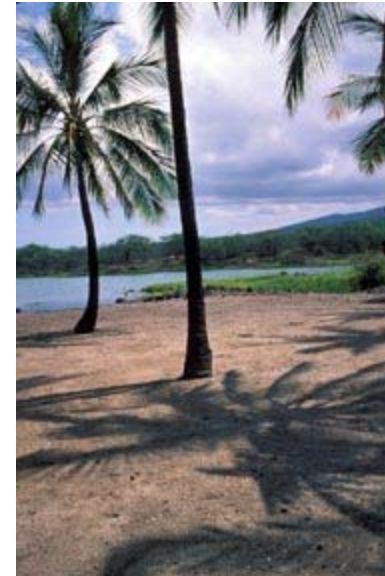
- FY04: 18 coastal Park assessments *underway*
- No. California, Pacific Northwest, SE Alaska, Hawai'i & Pacific Islands
- FY05 & FY06 (subject to approps) 23 coastal Park assessments *planned*
- So California, Alaska, Great Lakes, Northeast, Florida & Virgin Islands



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